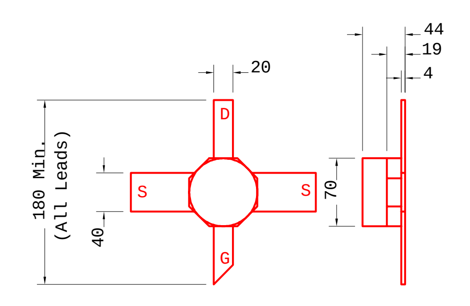


EFA040A-70

DATA SHEET

Low Distortion GaAs Power FET

- NON-HERMETIC LOW COST CERAMIC 70mil PACKAGE
- +22.0dBm TYPICAL OUTPUT POWER
- 8.0dB TYPICAL POWER GAIN AT 12GHz
- 0.3 X 400 MICRON RECESSED "MUSHROOM" GATE
- Si_3N_4 PASSIVATION
- ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY



All Dimensions In mils.

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression f=12GHz Vds=6V, Ids=50% Idss f=18GHz	20.0	22.0 22.0		dBm
G_{1dB}	Gain at 1dB Compression f=12GHz Vds=6V, Ids=50% Idss f=18GHz	6.5	8.0 5.0		dB
PAE	Gain at 1dB Compression Vds=6V, Ids=50% Idss f=12GHz		33		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V	60	105	160	mA
Gm	Transconductance Vds=3V, Vgs=0V	45	60		mS
Vp	Pinch-off Voltage Vds=3V, Ids=1.0 mA		-2.0	-3.5	V
BVgd	Drain Breakdown Voltage Igd=1.0mA	-10	-15		V
BVgs	Source Breakdown Voltage Igs=1.0mA	-6	-14		V
Rth	Thermal Resistance		250*		°C/W

*** Overall Rth depends on case mounting.**

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	10V	6V
Vgs	Gate-Source Voltage	-6V	-4V
Ids	Drain Current	Idss	75mA
Igsf	Forward Gate Current	10mA	1.5mA
Pin	Input Power	21dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150 °C
Tstg	Storage Temperature	-65/175°C	-65/150 °C
Pt	Total Power Dissipation	550mW	445mW

Note: 1 Exceeding any of the above ratings may result in permanent damage.
2. Exceeding any of the above ratings may reduce MTTF below design goals.

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DATA SHEET

Low Distortion GaAs Power FET

S-PARAMETERS

6V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.971	-30.2	4.747	154.4	0.021	72.3	0.714	-14.0
2.0	0.908	-59.1	4.348	130.0	0.037	55.5	0.681	-29.1
3.0	0.842	-84.8	3.860	108.4	0.047	42.9	0.651	-42.1
4.0	0.782	-109.8	3.516	88.8	0.052	33.0	0.626	-52.4
5.0	0.726	-133.4	3.212	70.4	0.055	24.9	0.592	-62.1
6.0	0.686	-152.0	2.939	53.7	0.055	20.6	0.558	-74.9
7.0	0.652	-172.6	2.687	37.1	0.055	16.8	0.543	-86.4
8.0	0.626	167.7	2.492	21.4	0.054	16.2	0.517	-96.6
9.0	0.631	140.1	2.292	4.2	0.057	17.8	0.511	-104.6
10.0	0.652	117.8	2.096	-12.5	0.063	14.5	0.497	-118.4
11.0	0.659	103.2	2.002	-28.6	0.073	9.8	0.485	-137.9
12.0	0.681	86.0	1.899	-45.5	0.083	2.8	0.480	-157.0
13.0	0.739	69.3	1.706	-61.4	0.088	-6.5	0.463	-173.7
14.0	0.776	55.3	1.513	-76.5	0.091	-16.1	0.465	168.8
15.0	0.787	41.1	1.400	-94.1	0.095	-29.4	0.498	144.8
16.0	0.798	25.7	1.269	-113.2	0.094	-44.6	0.518	120.3
17.0	0.789	15.5	1.103	-126.3	0.092	-50.4	0.516	105.9
18.0	0.803	7.3	1.043	-138.6	0.101	-67.9	0.574	93.1
19.0	0.821	-7.7	0.928	-155.5	0.085	-83.5	0.604	75.9
20.0	0.846	-19.7	0.854	-171.7	0.080	-98.6	0.657	59.9
21.0	0.829	-28.2	0.801	173.6	0.076	-113.9	0.654	47.1
22.0	0.795	-39.9	0.760	160.1	0.076	-129.4	0.650	38.6
23.0	0.808	-56.6	0.695	142.7	0.075	-147.4	0.629	20.9
24.0	0.819	-69.7	0.633	124.1	0.078	-168.0	0.617	0.1
25.0	0.756	-84.3	0.617	107.6	0.089	176.3	0.618	-14.7
26.0	0.754	-103.8	0.634	90.8	0.117	161.8	0.599	-30.8